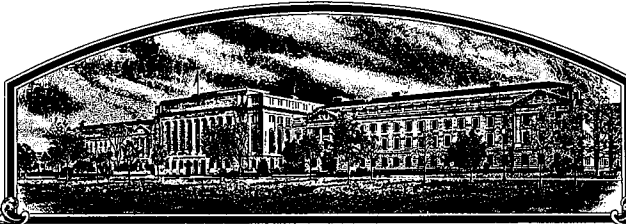


No.

9200248



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Golden's Foundation Seeds, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (T. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

CORN

'LH165'



In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this 31st day of August in the year of our Lord one thousand nine hundred and ninety-three.

Attest:

Kenneth H. Evans
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Mike Esay
Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) (as it is to appear on the Certificate) HOLDEN'S FOUNDATION SEEDS, INC.		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NO. Ex2504	3. VARIETY NAME LH165
4. ADDRESS (street and no. or R.F.D. no., city, state, and ZIP) 201 N. MAPLEWOOD AVENUE P.O. BOX 839 WILLIAMSBURG, IA 52361		5. PHONE (Include area code) (319)668-1100	FOR OFFICIAL USE ONLY PVPO NUMBER 92C0248 F I L I N G Date August 24, 1992 Time 9:10 <input checked="" type="checkbox"/> A.M. <input type="checkbox"/> P.M. F E E S Filing and Examination Fee: \$2150.00 Date August 21, 1992 Certificate Fee: \$250.00 Date Aug. 9, 1993
6. GENUS AND SPECIES NAME ZEa MAYS	7. FAMILY NAME (Botanical) GRAMINEAE		
8. CROP KIND NAME (Common Name) CORN, FIELD	9. DATE OF DETERMINATION NOVEMBER 1989		
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) CORPORATION			
11. IF INCORPORATED, GIVE STATE OF INCORPORATION IOWA		12. DATE OF INCORPORATION 1968	
13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS MARK ARMSTRONG P.O. BOX 839 WILLIAMSBURG, IA 52361			

PHONE (Include area code):

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow INSTRUCTIONS on reverse)

- a. ☒ Exhibit A, Origin and Breeding History of the Variety.
- b. ☒ Exhibit B, Novelty Statement.
- c. ☒ Exhibit C, Objective Description of Variety.
- d. ☒ Exhibit D, Additional Description of Variety.
- e. ☒ Exhibit E, Statement of the Basis of Applicant's Ownership.
- f. ☒ Seed Sample (2,500 viable untreated seeds). Date Seed Sample mailed to Plant Variety Protection Office **8/18/92**
- g. ☒ Filing and Examination Fee (\$2,150) made payable to "Treasurer of the United States."

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See section 83(a) of the Plant Variety Protection Act.)

☐ YES (If "YES," answer items 16 and 17 below) ☒ NO (If "NO," skip to item 18 below)

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?

☐ YES ☐ NO

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?

☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?

☐ YES (If "YES," through ☐ Plant Variety Protection Act ☐ Patent Act. Give date: _____.)
☒ NO

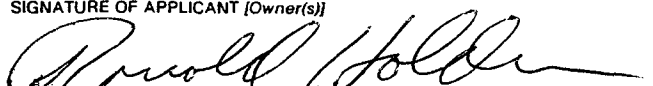
19. HAS THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETING IN THE U.S. OR OTHER COUNTRIES?

☐ YES (If "YES," give names of countries and dates)
☒ NO

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in section 41, and is entitled to protection under the provisions of section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT [Owner(s)] 	CAPACITY OR TITLE PRESIDENT	DATE 8/18/92
SIGNATURE OF APPLICANT [Owner(s)]	CAPACITY OR TITLE	DATE

ORIGIN AND BREEDING HISTORY OF THE INBRED

Exhibit A

LH165 was developed from the single cross LH82 x LH51 by selfing and using the pedigree method of plant breeding. Yield, stalk quality, root quality, disease tolerance, late plant greenness, late plant intactness, ear retention, pollen shedding ability, silking ability and corn borer tolerance were the criteria used to determine the rows from which ears were selected.

LH82 and LH51, the progenitors of LH165, are both proprietary inbred lines of Holden's Foundation Seeds, Inc. Williamsburg, Iowa. In 1984, Holden's Foundation Seeds, Inc. applied for Plant Variety Protection of LH82. LH82 was given Certificate 8500037, July 26, 1985. In 1982, Holden's Foundation Seeds, Inc. applied for Plant Variety Protection of LH51. LH51 was given Certificate 8200062, June 30, 1983. On the following pages are a summary and description of the development of LH165. Also included are copies of pages from Holden's Foundation Seeds, Inc. nursery books. The rows associated with the development of LH165 have been highlighted.

Attached is a statement from the originating plant breeder, Anthony Schreiber, Holden's Foundation Seeds, Inc. stating that LH165 is stable, uniform and free of variance.

ORIGIN AND BREEDING HISTORY OF THE INBRED
LH165 = Ex2504 = LH82 x LH51

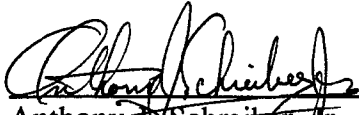
Exhibit A

<u>FIELD/ROW</u>	<u>PEDIGREE</u>	<u>LOCATION</u>	<u>YEAR</u>
9 A Bottom	LH165	Iowa	1991
33648-33677	Ex2504	Hawaii	1990-91
9550-9559	Ex2504	Iowa	1990
9737	LH82 x LH51 @7	Iowa	1989
17660	LH82 x LH51 @6	Iowa	1988
27792	LH82 x LH51 @5	Hawaii	1987-88
22858	LH82 x LH51 @4	Iowa	1987
1477	LH82 x LH51 @3	Hawaii	1986-87
640	LH82 x LH51 @2	Iowa	1986
28863	LH82 x LH51 @1	Iowa	1985
23461	LH82 x LH51	Hawaii	1984-85
31396	LH51	Iowa	1984
31423	LH82		

UNIFORMITY STATEMENT

Exhibit A

I have observed LH165 during the last four generations it has been increased: 1989 Iowa nursery row 9737; 1990 Iowa nursery rows 9550-9559; 1990-91 Hawaii nursery rows 33648-33677; and 1991 Iowa production 9 A Bottom field. In each of these increases, seeds from the previous generation were planted. LH165 is stable and uniform from generation to generation. The inbred line is also free of variance from within the population.


Anthony J. Schreiber, Jr.
Plant Breeder
Holden's Foundation Seeds, Inc.

NOVELTY STATEMENT

Exhibit B

LH165 most closely resembles LH82. However, the most distinguishing characteristic is plant color. LH165 is darker green in color than LH82. When using the Munsell Color Charts for Plant Tissues as a reference, LH165 would be classified as 5GY 4/4 and LH82 would be classified as 5GY 4/6.

The glume of LH165 is green with a purple stripe while the glume of LH82 is green with a brown margin.

The silks of LH165 are pink in color while the silks of LH82 are green in color.

OBJECTIVE DESCRIPTION OF VARIETY
CORN (ZEA MAYS)

NAME OF APPLICANT(S) Holden's Foundation Seeds, Inc.	FOR OFFICIAL USE ONLY
ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) P.O. Box 839 201 N. Maplewood Avenue Williamsburg, IA 52361	PVPO NUMBER 9200248 VARIETY NAME OR TEMPORARY DESIGNATION LH165

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g., or) when number is either 99 or less or 9 or less.

1. TYPE:

1 = SWEET

2 = DENT

3 = FLINT

4 = FLOUR

5 = POP

6 = ORNAMENTAL

2. REGION WHERE BEST ADAPTED IN THE U.S.A.:

1 = NORTHWEST

2 = NORTHCENTRAL

3 = NORTHEAST

4 = SOUTHEAST

5 = SOUTHCENTRAL

6 = SOUTHWEST

7 = MOST REGIONS

3. MATURITY (In Region of Best Adaptability):

(Under "Comments" (pg. 3) state how
heat units were calculated)

DAYS FROM EMERGENCE TO 50% OF PLANTS IN SILK

HEAT UNITS

DAYS FROM 50% SILK TO OPTIMUM EDIBLE QUALITY

HEAT UNITS

DAYS FROM 50% SILK TO HARVEST AT 25% KERNEL MOISTURE

HEAT UNITS

4. PLANT:

CM. HEIGHT (To tassel tip)

CM. EAR HEIGHT (To base of top ear)

CM. LENGTH OF TOP EAR INTERNODE

Number of Tillers:

1 = NONE

2 = 1-2

3 = 2-3

4 = > 3

Number of Ears Per Stalk:

1 = SINGLE

2 = SLIGHT TWO-EAR TENDENCY

3 = STRONG TWO-EAR TENDENCY 4 = THREE-EAR TENDENCY

Cytoplasm Type:

1 = NORMAL

2 = "T"

3 = "S"

4 = "C"

5 = OTHER (Specify) _____

5. LEAF (Field Corn Inbred Examples Given):

Color: *5GY 4/4 Munsell Color Charts for Plant Tissues

1 = LIGHT GREEN (HY)

2 = MEDIUM GREEN (WF9)

3 = DARK GREEN (B14)

4 = VERY DARK GREEN (K166)

Angle from Stalk (Upper half):

1 = < 30°

2 = 30-60°

3 = > 60°

Sheath Pubescence:

1 = LIGHT (W22)

2 = MEDIUM (WF9)

3 = HEAVY (OH26)

Marginal Waves:

1 = NONE (HY)

2 = FEW (WF9)

3 = MANY (OH7L)

Longitudinal Creases:

1 = ABSENT (OH51)

2 = FEW (OH56A)

3 = MANY (PA11)

Width:

CM. WIDEST POINT OF EAR NODE LEAF

Length:

CM. EAR NODE LEAF

NUMBER OF LEAVES PER MATURE PLANT

6. TASSEL:

0 9

NUMBER OF LATERAL BRANCHES

Branch Angle from Central Spike:

1

1 = $< 30^\circ$ 2 = $30-40^\circ$ 3 = $> 45^\circ$

Penduncle Length:

0 5

CM. FROM TOP LEAF TO BASAL BRANCHES

Pollen Shed:

2

1 = LIGHT (WF9)

2 = MEDIUM

3 = HEAVY (KY21)

2

Anther Color:

1 = YELLOW

2 = PINK

3 = RED

4 = PURPLE

5 = GREEN

6

Glume Color:

6 = OTHER (Specify)

green with purple stripe

Pollen Restoration for Cytoplasm (0 = Not Tested, 1 = Partial, 2 = Good)

0

"T"

0

"S"

0

"C"

0

OTHER (Specify Cytoplasm and degrees of restoration)

7. EAR (Husked Ear Data Except When Stated Otherwise):

1 6

CM LENGTH

3 6

MM. MID-POINT
DIAMETER

8 7

GM. WEIGHT

Kernel Rows:

2

1 = INDISTINCT

2 = DISTINCT

1 6

NUMBER

1

1 = STRAIGHT

2 = SLIGHTLY CURVED

3 = SPIRAL

Silk Color (Exposed at Silking Stage):

2

1 = GREEN

2 = PINK

3 = SALMON

4 = RED

Husk Color:

1

FRESH

1 = LIGHT GREEN

2 = DARK GREEN

3 = PINK

6

DRY

4 = RED

5 = PURPLE

6 = BUFF

Husk Extention: (Harvest Stage)

2

1 = SHORT (Ears Exposed) 2 = MEDIUM (Barely Covering Ear)

3 = LONG (8-10CM Beyond Ear Tip)

4 = VERY LONG (> 10 CM)

Husk Leaf:

1

1 = SHORT (< 8 CM)

2 = MEDIUM (8-15 CM)

3 = LONG (> 15 CM)

Shank:

1 8

CM LONG

0 9

NO. OF INTERNODES

Position at Dry Husk Stage:

1

1 = UPRIGHT

2 = HORIZONTAL

3 = PENDENT

Taper:

2

1 = SLIGHT

2 = AVERAGE

3 = EXTREME

Drying Time (Unhusked Ear):

2

1 = SLOW

2 = AVERAGE

3 = FAST

8. KERNEL (Dried):

Size (From Ear Mid-Point):

1 0

MM LONG

0 7

MM. WIDE

0 4

MM. THICK

Shape Grade (% Rounds)

3

1 = < 20

2 = 20-40

3 = 40-60

4 = 60-80

5 = > 80

8. KERNEL (Dried) :

1

Pericarp Color:

1 = COLORLESS

2 = RED-WHITE

3 = TAN

4 = BRONZE

5 = BROWN

6 = LIGHT RED

7 = CHERRY RED

8 = VARIEGATED (Describe) _____

1

Aleurone Color:

1 = HOMOZYGOUS

2 = SEGREGATING (Describe) _____

1

1 = WHITE

2 = PINK

3 = TAN

4 = BROWN

5 = BRONZE

6 = RED

7 = PURPLE

8 = PALE PURPLE

9 = VARIEGATED (Describe) _____

3

Endosperm Color:

1 = WHITE

2 = PALE YELLOW

3 = YELLOW

4 = PINK-ORANGE

5 = WHITE CAP.

Endosperm Type:

3

1 = SWEET (su1)

2 = EXTRA SWEET (sh2)

3 = NORMAL STARCH

4 = HIGH AMYLOSE STARCH

5 = WAXY STARCH

6 = HIGH PROTEIN

7 = HIGH LYSINE

8 = OTHER (Specify) _____

1

8

GM. WEIGHT /100 SEEDS (Unsize Sample)

9. COB:

2

7

MM. DIAMETER AT MID-POINT

Strength:

2

1 = WEAK

2 = STRONG

Color:

3

1 = WHITE

2 = PINK

3 = RED

4 = BROWN

5 = VARIEGATED

6 OTHER (Specify) _____

10. DISEASE RESISTANCE (0 = Not Tested, 1 = Susceptible, 2 = ~~Susceptible~~: tolerant

0

STALK ROT (Diplodia)

0

STALK ROT (Fusarium)

0

STALK ROT (Gibberella)

2

H. Turcicum Race 1
NORTHERN LEAF BLIGHT

0

SOUTHERN LEAF BLIGHT

0

SMUT

0

SOUTHERN RUST

0

CORN SMUT

0

BACTERIAL WILT

0

BACTERIAL LEAF BLIGHT

0

MAIZE DWARF MOSAIC

0

STUNT

0

OTHER (Specify) _____

11. INSECT RESISTANCE (0 = Not Tested, 1 = Susceptible, 2 = Resistant):

0

CORNBORER

0

EARWORM

0

SAPBEETLE

0

APHID

0

ROOTWORM (Northern)

0

ROOTWORM (Western)

0

ROOTWORM (Southern)

0

OTHER (Specify) _____

12. VARIETIES MOST CLOSELY RESEMBLING THAT SUBMITTED FOR THE CHARACTERS GIVEN:

CHARACTER	VARIETY	CHARACTER	VARIETY
Maturity	LH82	Kernel Type	LH82
Plant Type	LH82	Quality (Edible)	
Ear Type	LH85	Usage	LH82

REFERENCES:

U.S. Department Agriculture. Yearbook 1937.

Corn: Culture, Processing, Products. 1970 Avi Publishing Company, Westport, Connecticut. (Numerous (Authors)

Emerson, R.A., G.W. Beadle, and A.C. Fraser. A Summary of Linkage Studies in Maize. Cornell A.E.S., Mem. 180. 1935.

The Mutants of Maize. 1968. Crop Science Society of America. Madison, Wisconsin.

Stringfield, G.H. Maize Inbred Lines of Ohio. Ohio A.E.S. Bul. 831. 1959.

Butler, D.R. 1954 - A System for the Classification of Corn Inbred Lines - PhD. Thesis, Ohio State University.

COMMENTS:

$$GDD = \frac{T_{max} + T_{min}}{2} - 50^{\circ}F$$

$$T_{max} \leq 86^{\circ}F$$

$$T_{min} \geq 50^{\circ}F$$

8

ADDITIONAL DESCRIPTION OF THE INBRED

Exhibit D

LH165 is a medium season non-stiff stalk field corn inbred. It flowers slightly earlier than LH82. LH165 will be a good pollinator, but will not be a suitable seed parent. LH165 has good general combining ability with stiff stalk lines.

LH165 hybrids have good yield for their maturity. They also exhibit consistent, medium-sized ears down the row. LH165 hybrids have shown tolerance to Northern Leaf Blight and Eyespot. LH165 hybrids have also shown tolerance to European corn borer.

Exhibit D



STATEMENT OF THE BASIS OF APPLICANT OWNERSHIP

Exhibit E

Holden's Foundation Seeds, Inc., Williamsburg, Iowa, is the sole owner and breeder of the LH165 corn inbred line for which it solicits a certificate of protection.